

REMARKS

The undersigned notes with appreciation that 2-6 have been identified as being drawn to allowable subject matter. For reasons discussed in detail below, claim 1 is also allowable over the cited references, and claims 1-7, as originally filed are in *prima facie* condition for allowance.

Claim 1 was rejected as being obvious over U.S. Patent 6,280,022 to Reinten in view of U.S. Patent 5,900,215 to Seifert. This rejection is traversed.

The invention allows for manufacturing ink jet heads with high density nozzles, while assuring that the adhesion of the actuator to the diaphragm can be attained easily and with high accuracy. With reference to Figures 6-8 of the application, and the text appearing on pages 12 and 13, it can be seen that when the tips of the actuators (1 in Figures 1-4 of the application) are positioned in the grooves 7 of the dipping plate 8, an imaginary first line that connects the tips is held in parallel with an imaginary second line that connects the borders between immersed and non-immersed portion of the actuators 1 (see page 12 at lines 16-18). That is, the adhesive will come up the sides of the tip ends by certain amount that will be the same for each actuator 1 (this is where the imaginary second line passes—e.g., at the border). In the preferred embodiment, this is accomplished with dummy actuators 9 (Figure 2) which fit within groove 10. When the dummy actuators 9 are in place, an imaginary third line passing through the tip ends is in parallel with the imaginary second line (see page 12, at line 20). Other methods of maintaining the parallel relationship of the first and second imaginary lines are also contemplated within the practice of this invention.

Claim 1 specifically requires:

dipping the tip ends of said plurality of actuators into an adhesive pond so that an adhesive agent clings to the tip ends of said plurality of actuators while maintaining a state in which an imaginary first line that connects the tip ends of said plurality of actuators is in parallel with an imaginary second line that connects borders between immersed and non-immersed portions of said plurality of actuators.

This feature is not shown or suggested by any combination of Reinten and Seifert. As specifically acknowledged by the Examiner, Reinten does not teach how the actuator unit is adhered to the diaphragm. Rather, Reinten shows a specialized ink jet nozzle head where there is a button or bump positioned below each actuator for concentrating the force of actuation (see Abstract, claims and Figures 2 and 3 of Reinten). With reference to Figures 2 and 3, it can be seen that Reinten does not describe how the actuators 24 are adhered to the diaphragm, and describes no process for affixing an adhesive between the actuators and the diaphragm. The Examiner relies on Seifert with respect to the adhesive. Figure 1 of Seifert shows the end of a fiber 10 being dipped into an adhesive. However, it is noted that Seifert makes absolutely no showing whatsoever concerning holding a plurality of devices (be they actuators or fiber optics) in parallel during a dipping process step such that an imaginary first line passing through the tips of the devices is parallel to an imaginary second line passing through the borders between immersed and non-immersed portions. Therefore, any combination of Reinten and Seifert would not yield or make obvious the claimed invention.

In summary, the invention dips tip ends of a plurality of actuators in an adhesive pond so that an adhesive agent clings to the tip ends of the plurality of actuators while maintaining a state in which an imaginary first line that connects the tip ends of the plurality of actuators is in parallel with an imaginary second line that connects borders between immersed and non-immersed portions of the plurality of actuators. Thus, the adhesive agent clings in a uniform amount to the tip ends of all the actuators in this invention. Reinten does not disclose dipping tip ends of a plurality of actuators into an adhesive pond. Seifer discloses dipping the fiber 10 in the adhesive pond; however, Seifer does not disclose that an imaginary first line that connects tip ends of a plurality of actuators is in parallel with an imaginary second line that connects borders between immersed and non-immersed portions of the plurality of actuators. Accordingly, in Seifer, the adhesive agent cannot cling in a uniform amount to the tip ends of all the fibers 10. As such, no combination of Reinten and Seifer would make the claimed invention obvious.

In view of the foregoing, it is respectfully requested that the application be

reconsidered, that claims 1-7 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael E. Whitham', is written over the typed name.

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